

Notice of Allowability

Application No.

09/886,165

Examiner

Ling-Siu Choi

Applicant(s)

CUMMINGS ET AL.

Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 09/15/2005.
2. ☒ The allowed claim(s) is/are 1-13, 26-32, and 36-37.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

1. This Office Action is in response to the Amendment after Final filed September 15, 2005. Claims 14-25 and 33-35 were canceled and claims 1-13, 26-32, and 36-37 are now pending.

Allowable Subject Matter

2. Claims 1-13, 26-32, and 36-37 are allowed.
3. The following is an examiner's statement of reasons for allowance:

The present claims are allowable over the closest references: Austin et al. (WO 01/37958 A2), Austin et al. (US 5,837,115), and Regnier et al. (US 6,596,144 B1).

An apparatus for dielectrophoretic separation , comprising		
1	a fluid flow channel	fluid inlet and outlet means
		a plurality of insulating structures disposed therein
2	an electrode	in electric communication with each fluid inlet and outlet means, wherein the electrodes are positioned to generate a spatially non-uniform electric field across the plurality of insulating structures and wherein the spatially non-uniform electric field exerts a dielectrophoretic force on a sample undergoing separation
3	power supply means	connected to the electrode
wherein electroosmotic flow of a fluid in the fluid flow channel is not suppressed		

(summary of claim 1)

Austin et al. (WO 01/37958 A2) disclose a microchip for polarized particles, comprising constrictions of insulating material for dielectrophoresis powered by an alternating current or direct current signal generator and a hot source that can be heated to specific temperatures (abstract). However, Austin et al. do not teach or fairly suggest the claimed apparatus, especially having the electroosmotic flow not suppressed.

Austin et al. (US 5,837,115) disclose a sorting apparatus composed of a substrate having a receptacle, wherein electrodes are positioned within the receptacle to generate an electric field in the fluid medium in the receptacle to induce the migration of the microstructures and the obstacles of the array of obstacles is in various shapes such as round posts or rectangular bunkers, which are separated by a distance in a range of from about 0.01 microns to about 50.0 microns (abstract; claims 1 and 9). However, Austin et al. do not teach or fairly suggest the claimed apparatus, especially comprising dielectrophoretic separation process and having the electroosmotic flow not suppressed.

Regnier et al. disclose a separation column which includes multiple collocated monolith support structures and interconnected channels defined by the support structures, wherein the mobile phase is transported through the separation system by electrophoresis and electrochromatography (abstract; col. 1, lines 24-44). However, Regnier et al. do not teach or fairly suggest the claimed apparatus, especially comprising dielectrophoretic separation process and having the electroosmotic flow not suppressed.

In light of the above discussion, it is evident as to why the present claims are patentable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the

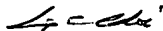
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payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-272-1098.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reach on 571-272-1114.



LING-SUI CHOI
PRIMARY EXAMINER

October 5, 2005